

AMENDMENT TO THE CLAIMS

1. (Previously Presented) A high throughput method for screening lubricating oil additive composition samples, under program control, comprising

(a) providing a plurality of different lubricating oil additive composition samples comprising at least one lubricating oil additive, each sample being in a respective one of a plurality of test receptacles;

(b) maintaining each sample at a predetermined temperature for a predetermined time;

(c) measuring the storage stability of each sample to provide storage stability data for each sample; and,

(d) outputting the results of step (c).

2. (Original) The method of claim 1, wherein the at least one lubricating oil additive is selected from the group consisting of antioxidants, anti-wear agents, detergents, rust inhibitors, dehazing agents, demulsifying agents, metal deactivating agents, friction modifiers, pour point depressants, antifoaming agents, co-solvents, package compatibilisers, corrosion-inhibitors, ashless dispersants, dyes, extreme pressure agents and mixtures thereof.

3. (Original) The method of claim 1, wherein the test receptacles are fabricated from a transparent glass.

4. (Original) The method of claim 1, wherein the step (b) of maintaining each sample at a predetermined temperature for a predetermined time is performed at a temperature of from about 20°C to about 80°C.

5. (Original) The method of claim 4, wherein the predetermined period of time is at least about one day.

6. (Original) The method of claim 1, wherein the step of measuring the storage stability of each sample comprises determining the opacity or light scattering of the sample and comparing the determined opacity or light scattering with the opacity or light scattering of a reference sample.

7. (Original) The method of claim 6, wherein the opacity of the sample is determined by measuring the intensity of light passed through a sample.

8. (Original) The method of claim 1, further comprising the step of agitating each sample before measuring the storage stability of the sample.

9. (Original) The method of claim 1, wherein the plurality of samples are in a linear array and are sequentially moved to a measuring station between a light source and a photocell for individually measuring the storage stability of each sample.

10. (Original) The method of claim 1, wherein each sample has affixed thereto a bar code identifying the sample.

11. (Original) The method of claim 10, wherein a robotic assembly selectively retrieves individual test receptacles from an array of test receptacles and individually positions said test receptacles in a testing station for determination of the storage stability.

12. (Original) The method of claim 11, wherein said robotic assembly is controlled by a computer.

13. (Previously Presented) The method of claim 12, wherein the result of step (c) for each sample is transmitted to the computer, the computer compares the result with a predetermined value delimiting a failure or passing of the result, and the computer identifies failed samples to preclude further testing of the failed samples.

14. (Original) The method of claim 1, wherein the step of outputting comprises storing the result of step (c) on a data carrier.

15. (Original) The method of claim 1, further comprising the step of using the result of step (c) as a basis for obtaining a result of further calculations.

16. (Original) The method of claim 14, further comprising the step of transmitting the result of step (c) to a data carrier at a remote location.

17. (Original) The method of claim 15, further comprising the step of transmitting the result of further calculations to a data carrier at a remote location.

18. (Original) The method of claim 1, wherein the storage stability measurement of step (c) comprises a sedimentation measurement, color measurement or a viscosity measurement.

19. (Original) The method of claim 1, wherein the plurality of different lubricating oil additive composition samples further comprise a diluent oil to form an additive concentrate.

20. (Previously Presented) A high throughput method for screening lubricating oil composition samples, under program control, comprising:

(a) providing a plurality of different lubricating oil composition samples comprising (i) a major amount of at least one base oil of lubricating viscosity and (ii) a minor amount of at least one lubricating oil additive, each sample being in a respective one of a plurality of test receptacles;

(b) maintaining each sample at a predetermined temperature for a predetermined time;

(c) measuring the storage stability of each sample to provide storage stability data for each sample; and,

(d) outputting the results of step (c).

21. (Original) The method of claim 20, wherein the base oil is a natural or synthetic oil.

22. (Original) The method of claim 20, wherein the lubricating oil additive is selected from the group consisting of antioxidants, anti-wear agents, detergents, rust inhibitors, dehazing agents, demulsifying agents, metal deactivating agents, friction modifiers, pour point depressants, antifoaming agents, co-solvents, package compatibilisers, corrosion-inhibitors, ashless dispersants, dyes, extreme pressure agents and mixtures thereof.

23. (Original) The method of claim 20, wherein the test receptacles are fabricated from a transparent glass.

24. (Original) The method of claim 20, wherein the step (b) of maintaining each sample at a predetermined temperature for a predetermined time is performed at a temperature of from about 20°C to about 80°C.

25. (Original) The method of claim 24, wherein the predetermined period of time is at least about one day.

26. (Original) The method of claim 20, wherein the step of measuring the storage stability of each sample comprises determining the opacity or light scattering of the sample and comparing the determined opacity or light scattering with the opacity or light scattering of a reference sample.

27. (Original) The method of claim 26, wherein the opacity of the sample is determined by measuring the intensity of light passed through a sample.

28. (Original) The method of claim 20, further comprising the step of agitating each sample before measuring the storage stability of the sample.

29. (Original) The method of claim 20, wherein the plurality of samples are in a linear array and are sequentially moved to a measuring station between a light source and a photocell for individually measuring the storage stability of each sample.

30. (Original) The method of claim 20, wherein each sample has affixed thereto a bar code identifying the sample.

31. (Original) The method of claim 30, wherein a robotic assembly selectively retrieves individual test receptacles from an array of test receptacles and individually positions said test receptacles in a testing station for determination of storage stability.

32. (Original) The method of claim 31 wherein said robotic assembly is controlled by a computer.

33. (Previously Presented) The method of claim 32, wherein the result of step (c) for each sample is transmitted to the computer, the computer compares the result with a predetermined value delimiting a failure or passing of the result, and the computer identifies failed samples to preclude further testing of the failed samples.

34. (Original) The method of claim 20, wherein the step of outputting comprises storing the result of step (c) on a data carrier.

35. (Original) The method of claim 20, further comprising the step of using the result of step (c) as a basis for obtaining a result of further calculations.

36. (Original) The method of claim 34, further comprising the step of transmitting the result of step (c) to a data carrier at a remote location.

37. (Original) The method of claim 35, further comprising the step of transmitting the result of further calculations to a data carrier at a remote location.

38. (Original) The method of claim 20, wherein the storage stability measurement of step (c) comprises a sedimentation measurement, color measurement or a viscosity measurement.

39. (Currently Amended) A system for screening lubricant performance, under program control, comprising:

a) a plurality of test receptacles, each containing a different lubricating oil composition sample comprising ~~[[a)]~~ (i) a major amount of at least one base oil of lubricating viscosity and ~~[[b)]~~ (ii) a minor amount of at least one lubricating oil additive;

b) receptacle moving means for individually positioning said test receptacles in a testing station for measurement of storage stability in the respective sample;

c) means for measuring ~~the~~ a first storage stability measurement in of the lubricating oil composition sample moved to the testing station to obtain storage stability data associated with said sample and for transferring said first storage stability data measurement to a computer controller, wherein said computer controller is operatively connected to the means for individually moving the test receptacles, and further wherein the means for measuring the first storage stability measurement is carried out in the absence of heating each lubricating oil composition sample;

d) means for measuring a second storage stability measurement of the lubricating oil composition sample moved to the testing station and for transferring said second storage stability measurement to the computer controller, and wherein the means for measuring the second storage stability measurement is carried out after each lubricating oil composition sample is heated to a predetermined temperature for a predetermined time; and

e) means for comparing said second storage stability measurement to said first storage stability measurement of each lubricating oil composition sample to obtain storage stability data for each sample.

40. (Previously Presented) The system of claim 39, wherein said receptacle moving means comprises a movable carriage.

41. (Original) The system of claim 39, wherein the receptacle moving means comprises a robotic assembly having a movable arm for grasping and moving a selected individual receptacle.

42. (Original) The system of claim 39, wherein the receptacle moving means comprises means for agitating the test receptacles.

43. (Original) The system of claim 39, wherein the testing station includes a light source and a photocell aligned with the light source.

44. (Original) The system of claim 39, wherein each test receptacle has a bar code affixed to an outer surface thereof.

45. (Original) The system of claim 44, further comprising a bar code reader.